CONEXANT

PCI Broadcast Audio/Video Decoder

CX23880/3

Single-Chip Solution Allows TV, Radio, Digital TV, MPEG, and Broadband Data Capture Over the PCI Bus

Conexant's highly flexible audio and video broadcast decoders support all analog broadcast video and audio formats in use worldwide. These single-chip solutions enable the host PC to perform audio/video capture, video display, audio playback, or record and playback at a later time through software or hardware audio/video codecs.

The CX23880/3 integrates a 10-bit NTSC/PAL/SECAM composite and S-Video decoder, image resizer/scaler, Direct Memory Access (DMA) controller, and Peripheral Component Interface (PCI) bus master on a single device. As a PCI initiator, the CX23880/3 can take control of the PCI bus to stream data as soon as the bus is available. Analog video signals are input to the CX2388x via a four-input multiplexer. The device family captures and decodes all major terrestrial broadcast audio standards.

The CX23880/3 series is fully compatible with Conexant's family of digital channel demodulators for capture of High Definition Television (HDTV) and Standard Definition Television (SDTV) streams, as well as broadband data over terrestrial, satellite, or cable links. A variety of third-party peripheral connectivity options are supported by the CX23880/3 series. Its General Purpose Input/Output (GPIO) pins and CPU host port interface enable vendor-specific board functionality and marketplace differentiation.

The CX23880/3 family offers a software solution for use with Windows XP Media Center Edition. It supports DirectX compliant device drivers for the following functions: Hardware MPEG encoding, Host-based MPEG encoding, Digital tuning, HDTV capture, Vertical Blanking Interval (VBI) data casting, Remote control receiving, and GPIO custom properties programming.

The CX23880/3 video and broadcast audio capture chips are mixed-signal monolithic ICs that enable a new platform for video, audio, and data communications in the PC. The CX23880/3 family enables a board vendor to build a wide variety of analog and digital TV capture products from a common code base. Each has its own specific functions to support different applications.

Distinguishing Features

- 10-bit video decoder
- Adaptive comb filter
- Global broadcast audio decoder
- Stereo DACs
- I^2S input and output
- Digital Television (DTV) and broadband support
- MPEG encoder and decoder interfaces

Part Number CX23880/3
Description PCI Broadcast Audio/Video Decoder

Video Subsystem Features

- 10-bit video ADCs
- Global video standards support (NTSC [M, J, 4.43], PAL [B, D, G, H, I, M, N, N-combination], SECAM [K, L])
- Capture resolution up to 768 x 576 (square pixel PAL/SECAM)
- NTSC and PAL adaptive comb filter for 2-D Y/C luminance and chrominance separation
- Multiple YCrCb and RGB pixel formats and YUV planar formats supported on output
- Selectable pixel density: 8, 16, 24, and 32 bits per pixel
- High-quality multi-tap horizontal and vertical image scaler for decoded video or 4:2:2 sources
- Flexible VBI data capture for closed captioning, teletext, and other analog broadcast data types
- Hue, brightness, contrast, and saturation control for video decoder
- Input via four-input multiplexer for four composite source inputs or three composite and an S-Video input
- UltraLock™ technique, enabling the CX2388x to lock onto video signals quickly and accurately, regardless of their source
- Macrovision® Detector, for detection of Macrovision pulses and signals

Audio Subsystem

- Low Intermediate Frequency (IF) sampling direct from tuner
- Global broadcast audio support (NICAM, A2, EIAJ, FM; BTSC-DBX)
- Decoded 48 kHz audio stream to PCI bus for real-time encoding to MP3
- Integrated 90 dB SNR stereo audio DACs to drive sound card or headphones
- I^2S input port for external source connectivity to on-board stereo DACs
- I^2S output port to drive coaxial/optical digital audio interface

PCI Subsystem

- Five independent functions, each with target/master and local register space (video, audio, MPEG port, VIP 2.0 host port, GP host port)
- On-chip execution of all RISC/control programs
- On-chip Static Random Access Memory (SRAM) for PCI data buffering up/down
- PCI revision 2.2 compliant

Miscellaneous

- Advanced Configuration and Power Interface (ACPI) and power-down support
- One crystal for all video and audio decoding
- 400 kHz serial bus master
- Compact 176-pin TQFP
- Low-power mode

Feature Comparison Chart

		880	883
Conexant PCI Decoder	4-Input CVBS ADC	X	X
Standard Features	Chroma ADC (S-Video)	X	X
	NTSC/PAL/SECAM	X	X
	Multiple YCrCb and RGB Formats	X	X
	Notch and CombY/C Separation	X	X
	Serial MPEG Port	X	X
	I^2S Input Port	X	X
	24-Bit GPIO	X	X
	Direct Memory Access (DMA) Channels	X	X
	Windows Hardware Quality Lab (WHQL)	X	X
CX2388x Family	10-Bit Video ADCs	X	X
Standard Features	Multi-Line 2D-Adaptive Comb Filter	X	X
	High-Speed Parallel MPEG Port	X	X
	I^2S Output Port	X	X
	Stereo Line Out DACs	X	X
	EIAJ/NICAM/A2/FM Stereo Decode	X	X
CX2388x Family	Signaling Controller (SC) with dBx Stereo Decode	X	X
Specialty Features	ITU-R 656 Output Port	X	
	ITU-R 656 Input Port	X	
	Intel/Motorola Host Port (I/O)	X	
	Video Interface Port (VIP) 2.0 Host Master Port (I/O)	X	

© 2003, Conexant Systems, Inc. All Rights Reserved. Conexant and the Conexant logo are registered trademarks of Conexant Systems, Inc. All other trademarks are owned by their respective owners. Although Conexant strives for accuracy in all its publications, this material may contain errors or omissions and is subject to change without notice. **THIS MATERIAL IS PROVIDED AS IS AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.** Conexant shall not be liable for any special, indirect, incidental or consequential damages as a result of its use.

www.conexant.com
General Information:
U.S. and Canada: (800) 854-8099
International: (949) 483-6996
Headquarters – Newport Beach
4000 MacArthur Blvd, P.O. Box C
Newport Beach, CA 92660-3095

Order# 101550A

CONEXANT